

Claims

1. A method of crediting a mobile radio apparatus account using:
 - a mobile radio apparatus having a radio communication circuit and a display capable of displaying an image including a graphical representation of data;
 - a retail system having a reader capable of reading graphically represented data displayed on said display of said mobile radio apparatus; and
 - a transaction control system remote from the retail system, the retail system and the transaction control system being capable of communicating over a communications link, the transaction control system storing account database records of mobile radio apparatus accounts, each account database record including an amount of credit; andthe method comprising:
 - displaying on the display of the mobile radio apparatus an image including a 15 graphical representation of transaction data which includes data corresponding to an account database record;
 - using the reader of the retail system to read the graphically represented transaction data displayed on the display of the mobile radio apparatus;
 - using the retail system to accept a payment;
 - communicating from the retail system to the transaction control system, the read data corresponding to an account database record and data indicating that payment has been accepted;
 - updating the account database record corresponding to the communicated data to credit the mobile radio apparatus account by the payment amount.
2. A method according to claim 1, wherein the transaction control system further stores transaction database records of desired transactions for respective mobile radio apparatus accounts, and said data corresponding to an account database record included in said transaction data is data which identifies a transaction database record.
3. A method according to claim 2, wherein

the account database records and the transaction database records are stored in an account database and a transaction database, respectively, which databases are separate from each other, each transaction database record including data identifying an account database record in the account database,

said step of updating the account database record comprises:

extracting, from the transaction database record identified by the communicated data, the data identifying an account database record in the account database; and

updating the account database record in the account database identified by the data extracted from the transaction database to credit the mobile radio apparatus account by the payment amount.

4. A payment system for crediting a mobile radio apparatus account comprising:
 - a transaction control system storing account database records of mobile radio apparatus accounts, each account database record including an amount of credit; and
 - a mobile radio apparatus having a radio communication circuit and a display capable of displaying an image including a graphical representation of transaction data which includes data corresponding to an account database record;
 - a retail system remote from the transaction control system; and
 - a communications link between the retail system and the transaction control system;
- the retail system comprising:
 - a reader capable of reading graphically represented transaction data displayed on said display of said mobile radio apparatus;
 - payment means for accepting a payment; and
 - means for communicating the read data corresponding to an account database record and data indicating that payment has been accepted over the communications link to the transaction control system;

the transaction control system comprising account update means for updating the account database record corresponding to the communicated data to credit the mobile radio apparatus account by the payment amount.

5. A payment system according to claim 4, wherein
the transaction control system further stores transaction database records of
desired transactions for respective mobile radio apparatus accounts, and
said data corresponding to an account database record included in said
transaction data is data which identifies a transaction database record.
6. A payment system according to claim 5, wherein the transaction control system
further comprises transaction update means, responsive to the data communicated from
the retail system, for updating the transaction database record identified by the
communicated data to indicate that payment has been accepted.
7. A payment system according to claim 5 or 6, wherein
the transaction control system stores the account database records and the
transaction database records in an account database and a transaction database,
respectively, which databases are separate from each other, each transaction database
record including data identifying an account database record in the account database,
the transaction control system further comprises extraction means for extracting,
from the transaction database record identified by the communicated data, the data
identifying an account database record in the account database, and
said account update means is arranged to update, in the account database, the
account database record identified by the data extracted from the transaction database.
8. A payment system according to claim 7, wherein the transaction control system
includes:
an account server including said account database and said account update
means;

transaction server including said transaction database and said extraction means; and
a communications link between said transaction server and said account server.

9. A payment system according to any one of claims 5 to 8, wherein
the transaction control system includes authorization means, responsive to the data identifying a transaction database record communicated from the retail system, for checking the transaction database record identified by the communicated data and communicating an authorization to the retail system if a predetermined criterion is met, and

the payment means is arranged to inhibit acceptance of the payment until receipt of said authorisation by said retail system.

10. A payment system according to any one of claims 5 to 9, wherein
each transaction database record includes the payment amount,
the transaction control system includes retrieval means, responsive to the data identifying a transaction database record communicated from the retail system, for retrieving the payment amount from the transaction database record identified by the communicated data and communicating the retrieved payment amount to the retail system, and

the payment means is arranged to accept the payment of the payment amount communicated from the transaction control system.

11. A payment system according to any one of claims 4 to 10, wherein
said transaction data further includes the payment amount and the payment means is arranged to accept the payment of the payment amount read as part of the transaction data.

12. A payment system according to any one of claims 4 to 11, wherein
the image is a message received by the mobile radio apparatus, and

the transaction control system includes messaging means including transmission means for transmitting a message comprising an image including a graphical representation of transaction data which includes data corresponding to an account database record.

13. A payment system according to claim 12 when appendant from claim 5, wherein

the messaging means further includes reception means for receiving a request message from the mobile radio apparatus indicative of the desire to credit the mobile radio apparatus account of the mobile radio apparatus,

the transaction control system further includes transaction database record creation means, responsive to the receipt of a message by said reception means, for creating a transaction database record including the data identifying the account of the mobile radio apparatus from which a message is received, and

said transmission means is responsive to the creation of a transaction database record by said transaction database record creation means for transmitting a message comprising an image including a graphical representation of transaction data which includes data identifying the created transaction database record.

14. A payment system according to claim 12 or 13, wherein the transaction control system includes:

a transaction server including said transaction database and said transaction update means;

a messaging server constituting said messaging means; and

a communications link between said transaction server and said messaging server.

15. A payment system according to any one of claims 4 to 14, wherein said data corresponding to an account database record, included in said transaction data, consists of a randomly generated number.

16. A payment system according to any one of claims 4 to 15, wherein the mobile radio apparatus is a mobile telephone.
17. A payment system according to any one of claims 4 to 16, wherein the graphical representation is a two-dimensional barcode.
18. A payment system according to any one of claims 4 to 17, wherein the two-dimensional barcode is a matrix barcode.
19. A retail system for use in a payment system according to any one of claims 4 to 18, comprising:
- a reader capable of reading graphically represented transaction data including data corresponding to an account database record displayed on a display of a mobile radio apparatus;
 - payment means for accepting a payment; and
 - means for communicating the read data and data indicating that payment has been accepted over a communications link to a transaction control system.
20. A retail system according to claim 19, wherein the payment means is arranged to accept the payment of a payment amount read as part of the transaction data.
21. A retail system according to claim 19 or 20, wherein the payment means is arranged to inhibit acceptance of the payment until receipt of an authorization by said retail system.
22. A retail system according to any one of claims 19 to 21, wherein said payment means and said means for communicating are arranged in a single terminal.
23. A transaction control system for use in a payment system according to any one of claims 4 to 18,

the transaction control system storing account database records of mobile radio apparatus accounts, each account database record including an amount of credit, and

the transaction control system comprising account update means for updating the account database record corresponding to the transaction database record identified by the communicated data to credit the mobile radio apparatus account by the payment amount.

24. A transaction control system according to claim 23, wherein

the transaction control system further stores transaction database records of desired transactions for respective mobile radio apparatus accounts, and

said data corresponding to an account database record included in said transaction data is data which identifies a transaction database record.

25. A transaction control system according to claim 24, wherein the transaction control system further comprises transaction update means, responsive to the data communicated from the retail system, for updating the transaction database record identified by the communicated data to indicate that payment has been accepted.

26. A transaction control system according to claim 24 or 25, wherein

the transaction control system stores the account database records and the transaction database records in an account database and a transaction database, respectively, which databases are separate from each other, each transaction database record including data identifying an account database record in the account database,

the transaction control system further comprises:

extraction means for extracting, from the transaction database record identified by the communicated data, the data identifying an account database record in the account database, and

said account update means is arranged to update, in the account database, the account database record identified by the data extracted from the transaction database.

27. A transaction control system according to any one of claims 24 to 26, wherein

each transaction database record includes the payment amount, and
the transaction control system includes retrieval means, responsive to the data identifying a transaction database record communicated from the retail system, for retrieving the payment amount from the transaction database record identified by the communicated data and communicating the retrieved payment amount to the retail system.

28. A transaction control system according to any one of claims 24 to 27, wherein the transaction control system includes authorization means, responsive to the data identifying a transaction database record communicated from the retail system, for checking the transaction database record identified by the communicated data and communicating an authorization to the retail system if a predetermined criterion is met.

29. A transaction control system according to any one of claims 23 to 28, wherein the transaction control system includes messaging means including transmission means for transmitting a message comprising an image including a graphical representation of transaction data which includes data identifying a transaction database record.

30. A transaction control system according to claim 29 when appendant from claim 21, wherein

the messaging means further includes reception means for receiving a request message from the mobile radio apparatus indicative of the desire to credit the mobile radio apparatus account of the mobile radio apparatus,

the transaction control system further includes transaction database record creation means; responsive to the receipt of a message by said reception means, for creating a transaction database record including data identifying the account of the mobile radio apparatus from which a message is received, and

said transmission means is responsive to the creation of a transaction database record by said transaction database record creation means for transmitting a message comprising an image including a graphical representation of transaction data which includes data identifying the created transaction database record.

31. A transaction control system according to claim 29 or 30, wherein the transaction control system includes:

a transaction server including said transaction database and said transaction update means;

a messaging server constituting said messaging means; and

a communications link between said transaction server and said messaging server.

32. A transaction server for use in a payment system according to claim 8 or any one of claims 9 to 18 when appendant from claim 8,

the transaction server storing a transaction database of transaction database records of desired transactions, each transaction database record including data identifying an account database record of a mobile radio apparatus account in an account database stored on an account server,

the transaction server comprising:

transaction update means, responsive to data identifying a transaction database record communicated from a retail system, for updating the transaction database record identified by the communicated data to indicate that payment has been accepted;

means for extracting from the transaction database record identified by the communicated transaction data, the data identifying an account database record in the account database; and

means for communicating the extracted data and the payment amount to the account server.

33. A transaction server according to claim 32, wherein

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each transaction database record includes the payment amount, and the transaction server includes retrieval means, responsive to the data identifying a transaction database record communicated from the retail system, for retrieving the payment amount from the transaction database record identified by the communicated data and communicating the retrieved payment amount to the retail system.

34. A transaction server according to claim 32 or 33, wherein the transaction server includes authorization means, responsive to the data identifying a transaction database record communicated from the retail system, for checking the transaction database record identified by the communicated data and communicating an authorisation to the retail system if a predetermined criterion is met.

35. A method of payment for a product using:

a mobile radio apparatus having a radio communication circuit and a display capable of displaying an image including a graphical representation of data;

a retail system having a reader capable of reading graphically represented data displayed on said display of said mobile radio apparatus; and

a transaction control system remote from the retail system, the retail system and the transaction control system being capable of communicating over a communications link, the transaction control system storing transaction database records of desired transactions each including data identifying a desired product,

the method comprising:

displaying on the display of the mobile radio apparatus an image including a graphical representation of transaction data which includes data identifying a transaction database record;

using the reader of the retail system to read the graphically represented transaction data displayed on the display of the mobile radio apparatus;

using the retail system to accept a payment;

communicating from the retail system to the transaction control system, the read data identifying a transaction database record and data indicating that payment has been accepted;

updating the transaction database record identified by the communicated data to indicate that payment has been accepted; and

delivering the product identified in the identified transaction database record.

36. A payment system comprising:

a transaction control system storing transaction database records of desired transactions each including data identifying a desired product;

a mobile radio apparatus having a radio communication circuit and a display capable of displaying an image including a graphical representation of transaction data which includes data identifying a transaction database record;

a retail system remote from the transaction control system; and

a communications link between the retail system and the transaction control system,

the retail system comprising:

a reader capable of reading graphically represented transaction data displayed on said display of said mobile radio apparatus;

payment means for accepting a payment; and

means for communicating the read data identifying a transaction database record and data indicating that payment has been accepted over the communications link to the transaction control system;

the transaction control system comprising:

means, responsive to the data communicated from the retail system, for updating the transaction database record identified by the communicated data to indicate that payment has been accepted.

37. A payment system for crediting a mobile radio apparatus account constructed and arranged to operate substantially as hereinbefore described with reference to the accompanying drawings.

38. A method of crediting a mobile radio apparatus account substantially as hereinbefore described with reference to the accompanying drawings.

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